Commercial Bank Lending to Agriculture: A Comparison of Rural Independent Banks and Holding Company Subsidiaries

COMMERCIAL BANK LENDING TO AGRICULTURE: A COMPARISON OF RURAL INDEPENDENT BANKS AND HOLDING COMPANY SUBSIDIARIES

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Recent changes in interstate banking laws and the increasing acquisition of small, rural banks by large bank holding companies (BHCs) headquartered in urban areas may affect the future supply of agricultural credit. If these large banking organizations decide to change the lending policies of the relatively small rural banks they acquire the supply of credit made available to farmers through rural banking offices could diminish.

Although many studies have described commercial bank lending to agriculture, only a few have tested hypotheses about the relationship between bank structure and the supply of agricultural credit. We investigate in this paper whether the ratios of agricultural loans to total assets are different for rural subsidiaries of large BHCs than for other banks in the same rural counties. By controlling for the size and location of banking firms and the effects of intra-state branching, our results provide a stronger test of various hypotheses about the effects of bank structure on the supply of agricultural credit than has been reported previously. After determining whether farm lending practices are influenced by BHC

affiliation, we draw inferences about the effects of further changes in bank structure on the supply of farm credit.

THE INFLUENCE OF BANKING STRUCTURE ON AGRICULTURAL LENDING

Concentration of Agricultural Lending among Small, Rural Banks

Agricultural lending by commercial banks is concentrated among several thousand relatively small banks located in rural areas. Agricultural banks are identified as commercial banks with ratios of agricultural to total loans that exceed the average ratio for all commercial banks. In 1984, the 5,000 agricultural banks, which had average total assets of $31 million, accounted for 60 percent of agricultural loans but only about 8 percent of all loans.[1/]

Although it is clear at the aggregate level that commercial bank lending to agriculture is dominated by small institutions, it is not clear why this should be the case. Lending to farmers, again in the aggregate, has been relatively profitable for banks. Before the declines in farmland prices in recent years, small, rural agricultural banks had higher rates of return on equity and lower percentages of their loans written off as losses, on average, than non-agricultural banks of comparable

size.[2/] On the basis of these data alone, it would be difficult to explain why commercial bank lending to agriculture is concentrated among the smaller institutions.

Alternative Explanations

One possible explanation for this specialization is that small, rural banks not affiliated with large BHCs have relatively few lending opportunities other than loans to local farmers and small businesses. In contrast, relatively large banking organizations, with their headquarters in metropolitan areas, have opportunities to lend to firms in a wide variety of industries. Given the wider variety of lending opportunities, the large banking organizations make smaller percentages of their loans to farmers to limit their exposure to potential downturns in the agricultural sector of the economy. According to this interpretation, then, it is the lack of alternative lending opportunities that accounts for the relatively high percentages of farm loans at small, rural banks.

Another interpretation is that small, rural banks have an advantage in making farm loans over larger banks located in metropolitan areas. The hypothesis in this case is that specialized capital

(for example, offices nearer to farmers) and long-term relationships with the farmers give small, rural banks a competitive advantage in farm lending.

One way to discriminate between these competing views is to analyze the influence of banking structure on agricultural lending in a way that eliminates the issue of a locational advantage. Some relatively large banking organizations have bank subsidiaries in rural areas, thus having the same locational advantage as independent banks or those in smaller banking organizations. Unlike these other institutions, however, the subsidiaries of large BHCs may benefit from opportunities to diversify risk that are not available to other banks in their communities. They can participate in loans originated by other subsidiaries of their BHCs, and, through loan participations within the BHCs, they can originate loans to local borrowers that exceed the lending limits of competing banks.

After controlling for location in the sample selected, consider the possible interpretations of the empirical results. Suppose the empirical results indicate no significant difference between the share of assets invested in agricultural loans at banks in large BHCs and at other banks in the same rural counties. In that case, the aggregate concentration

of agricultural loans among relatively small, rural banks can be interpreted as evidence of the locational advantage of rural banks, regardless of affiliation. In contrast, a lower percentage of assets invested in agricultural loans by subsidiaries of large BHCs would be interpreted as evidence of the greater opportunities to diversify risk than those available to other rural banks facing the same demand for agricultural credit.[3/]

RESULTS FROM THE EXISTING LITERATURE

Most of the studies that deal with this issue report that BHC affiliation has no influence on the agricultural loans of subsidiary banks.[4/] These studies, however, do not focus specifically on agricultural loan ratios and do not restrict the observations to those for banks in rural areas; consequently, large proportions of the observations involve banks in urban areas. It would not be surprising that an affiliation with BHCs would not influence the agricultural lending of banks in areas in which their customers have little or no demand for agricultural loans.

The few studies that focus on rural banks do report some effects of affiliation with BHCs on bank

lending. Markley (1984) reports that, among banks located in rural Virginia, those affiliated with BHCs had lower ratios of agricultural to total loans than other rural banks. It is difficult to evaluate this observation, however, since no test statistics are reported and no distinctions are made among BHCs by the size of the organizations (that is, some BHCs own many banks with billions of dollars in combined assets, whereas other BHCs own only one bank each). Finally, the Markley study does not hold local demand factors constant in comparing the agricultural loan ratios of affiliated and independent banks.

Barry and Pepper (1985) estimate the influence of BHC affiliation on the loan-to-deposit ratios of rural banks. They find that banks affiliated with BHCs have higher loan-to-deposit ratios than other banks, holding other influences constant. Their findings are similar to those of other studies that have examined the influence of BHC affiliation on loan-to-deposit ratios without focusing exclusively on rural banks. Barry and Pepper however, do not estimate the influence of BHC affiliation on the shares of bank loans made to farmers. Moreover, like Markley, they do not distinguish between large and small BHCs.

THE NATURE OF THE OBSERVATIONS

Given these unresolved issues in the literature, we examine the influence of the asset size of banking organizations on farm lending in a way that eliminates as an issue the locational advantages for small, rural banking organizations. In several states, the relatively large banking organizations have bank subsidiaries in rural areas and, therefore, the same advantage of proximity to farmers as other banks in the same areas. This study compares the ratios of agricultural loans to total loans and agricultural loans to total assets of the subsidiaries of large BHCs with those ratios of other banks in the same counties. Comparisons with banks in the same counties that are not in large BHCs hold constant influences other than the affiliation of a rural bank with a large BHC, such as the local demand for agricultural credit.

Choice of Time Periods

Data on the agricultural loan ratios of banks are derived from mid-year observations for the years 1975, 1980, and 1983 through 1985. Mid-year observations are used because most (if not all) agricultural loans for the year are on the books of banks by then. The use of mid-year observations also avoids some problems with the later quarters,

including loan repayments and end-of-year window dressing for bank financial reports.

These years were chosen to represent different conditions in the agricultural sector of the economy. The year 1975 is near the beginning of the rapid increases in farm debt and land prices that occurred in the 1970s and early 1980s; 1980 is near the peak of agricultural land prices. In the remaining years, 1983 through 1985, farmland prices declined sharply and farmers and their creditors experienced increasing financial stress.

Choice of States

In the states that permit BHCs to own more than one bank, the bank subsidiaries may be located throughout the state, subject to approval by the Federal Reserve Board. Some states permit banks to have branches throughout the state. Data on the composition of assets are available for the individual bank subsidiaries of BHCs but are not available for the individual branches of banks. Therefore, to permit comparison of the agricultural loan ratios of the offices of large banking organizations to the agricultural loan ratios of other banks in the same counties, observations are limited to rural counties in states that permit BHCs to own more than one bank but do not permit statewide

branching. The 10 states listed in table 1 meet these criteria in each of the years.

Identifying Large BHCs

Large BHCs are those large enough to have greater opportunities than small, rural, independent banks to diversify risk by lending to firms in a variety of industries. Rather than attempting to estimate a relationship between the size of banking organizations and their opportunities for diversifying risk, we derived comparisons of agricultural loan ratios using two alternative levels for the minimum size of large BHCs based on the total domestic banking assets of their subsidiaries. The two asset levels for identifying large BHCs were varied among the years to reflect the growth of total assets in the banking system. The results presented in table 2 used the following criteria for the minimum size of large BHCs: in 1975, $300 million; in 1980, $500 million; and in 1983 through 1985, $750 million. The results using cut-off levels for large BHCs twice as high as these levels yielded essentially the same results.

Identifying the Counties in the 10-State Sample

Agricultural loan ratios were calculated for counties that meet the following criteria:

(1) The county is outside metropolitan areas.

(2) At least one bank in the county is a subsidiary of a large BHC.

(3) At least one bank in the county is not a subsidiary of a large BHC.

(4) Agricultural loans are 17 percent (the current national average) or more of total loans at either the subsidiaries of large BHCs or the other banks in the county. This criterion eliminates counties in which there is relatively limited demand for agricultural loans.

Table 1 lists the number of counties in each of ten states that meet these criteria.

The Agricultural Loan Ratios

Tests for the effects of bank structure on farm lending were based on two measures of agricultural loan ratios: agricultural loans to total loans, and agricultural loans to total assets. Differences in the ratios of agricultural to total loans provide interesting information on how affiliation with BHCs affects the choices of banks among their potential borrowers. To avoid possible misinterpretations based only on these ratios, however, one must also look at differences in the ratios of agricultural loans to total assets. For example, it is possible that the subsidiaries of large BHCs have the same industrial composition of their loans as other banks in the same counties, but hold relatively large shares of their assets as deposits with the lead

banks of their BHCs located in metropolitan areas. Under these conditions, the comparisons of the ratios of agricultural loans to total loans would show no difference at subsidiaries of large BHCs, but these subsidiaries would have lower ratios of agricultural loans to total assets.

Another possibility is that the banks that are not subsidiaries of large BHCs may have lower ratios of loans to assets because of more limited opportunities to diversify risk in their loan portfolios. Their best alternative to investment in agricultural loans is more likely to be Treasury securities rather than loans to firms in non-agricultural industries. If the ratios of agricultural loans to total loans were not significantly different, the subsidiaries of large BHCs would tend to have higher ratios of agricultural loans to total assets. A third possibility is that the subsidiaries of large BHCs have lower ratios of agricultural loans to total loans but higher ratios of agricultural loans to total assets.

TEST RESULTS

In each year, the subsidiaries of large BHCs made a smaller percentage of their loans to farmers than the other banks in the same counties (table 2).

The means of the differences are significantly different from zero each year.[5/]

The implications of these results for the supply of agricultural credit can be illustrated using the results for 1980. Table 2 shows that, on average, the percentage of agricultural loans made by the subsidiaries of large BHCs in rural areas is 8 percentage points less than the agricultural loan ratios of other banks in the same counties. In other words, if banks in a given county that are not in large BHCs make 20 percent of their loans to farmers, the subsidiaries of large BHCs in the same county would make about 12 percent of their loans to farmers.

The mean differences in agricultural loan ratios in 1983 through 1985 were about the same as in 1980. Thus, these comparisons show no significant change in the relative supply of agricultural loans by banks in large BHCs during the agricultural sector's current period of financial stress.

The subsidiaries of large BHCs also have lower ratios of agricultural loans to total assets than other banks in their same counties. The mean differences in the ratios of agricultural loans to total assets are smaller, in absolute value, than the mean differences in the ratios of agricultural loans to total loans. This difference reflects the higher

ratios of total loans to total assets at the subsidiaries of large BHCs.[6/] This observation supports the view that the rural banks in large BHCs diversify risk by lending to firms in a variety of industries, whereas other rural banks limit their exposure to the agricultural sector of the economy by investing larger shares of their assets in securities, such as those of the U.S. Treasury.

CONCLUSIONS

In several ways, this study is an improvement over the existing literature on the influence of bank structure on farm lending. First, the study focuses exclusively on banks in rural areas, whereas most of the studies that examine the effects of BHC affiliation on farm loan ratios include a high percentage of urban banks in their samples. This study also incorporates improvements in controlling for the size of BHCs and controlling for local demand factors in comparing the agricultural loan ratios of banks in large BHCs with those of other banks.

The ratios of agricultural loans to total loans are significantly lower at banks in large BHCs than at other banks in the same rural counties. The significance of this finding for the supply of agricultural credit is mitigated to some extent by

the tendency of the subsidiaries of large BHCs to have higher ratios of total loans to total assets. The net result, however, is that the ratios of agricultural loans to total assets are significantly lower than those of other banks in the same rural counties.

The results are consistent with the view that many small, rural banks specialize in agricultural lending because of limited opportunities to diversify their risk by lending to firms in a wider variety of industries. Given this interpretation, an increase in the acquisition of small commercial banks in rural areas by large banking organizations would tend to reduce the supply of agricultural credit through commercial banks.

Finally, the differences between the agricultural loan ratios of the subsidiaries of large BHCs and the other banks in their same rural counties have not risen in recent years. These results, therefore, do not support the hypothesis that the subsidiaries of large BHCs have reduced their agricultural loan ratios relative to those of other banks in their same areas during the recent years of financial stress in the agricultural sector.

FOOTNOTES

1/ Melichar (1985).

2/ Melichar (1984) and Benjamin (1985).

3/ Lower agricultural loan ratios at subsidiaries of large BHCs may reflect a preference by farmers to borrow from locally owned banks. Farmers may consider the locally owned banks to be more reliable sources of credit than the subsidiaries of large BHCs. In contrast, they might consider the subsidiaries to be more reliable providers of credit; the credit available from locally owned banks is constrained by the deposits of local customers, whereas the subsidiaries of large BHCs have access to funds from other markets. Although it is not possible to distinguish these alternatives empirically, it is reasonable to argue that the theoretical foundation for the interpretation of results based on a preference for farmers to borrow from locally owned banks is not as strong as that for the interpretation based on the greater opportunities for subsidiaries of large BHCs to diversify risk.

4/ For surveys of the literature on the effects of affiliation with BHCs on bank performance, see Curry (1978), Schillereff (1982) and Brown (1983). Curry states that the studies indicate a tendency for affiliate banks to increase the ratios of various types of loans to total assets, but they do not indicate this effect for farm loans (p. 100).

5/ With only a few exceptions, the mean differences for each of the 10 states have the same sign as the mean differences across all 10 states, presented in table 2. Those exceptional cases involve mean differences based on relatively few observations. For states with observations for 11 or more counties, the signs of the mean differences are the same as the signs for all states combined.

6/ Some of the other studies also find that subsidiaries of BHCs have higher ratios of total loans to total assets than other banks. See Curry (1978), Schillereff (1982) and Brown (1983).

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Table 1
Location of Rural Counties included in the Study

States	Number of counties				
	1975	1980	1983	1984	1985
Alabama	4	3	1	1	1
Colorado	6	6	4	5	5
Georgia	1	0	1	3	4
Iowa	22	34	41	43	43
Michigan	2	4	6	6	3
Minnesota	37	35	33	31	31
Missouri	31	42	39	40	36
Ohio	10	8	8	6	8
Texas	5	12	14	17	14
Wisconsin	8	9	10	10	10
Combined states	126	153	157	162	155

Table 2
Differences between the Agricultural Loan Ratios for Banks in Large BHCs and Other Banks in the Same Rural Counties

Difference in the ratio of	1975	1980	1983	1984	1985
Agricultural loans to total loans	-11.60%	-7.95%	-7.71%	-8.38%	-8.08%
	(-8.08)	(-7.26)	(-6.77)	(-7.84)	(-7.30)
Agricultural loans to total assets	-4.50	-4.06	-2.93	-3.16	-3.04
	(-5.63)	(-5.60)	(-3.95)	(-4.51)	(-4.05)
Total loans to total assets	3.40	2.43	3.49	3.76	3.91
	(3.34)	(3.24)	(3.43)	(3.74)	(3.74)

Note: t-statistics in parentheses